

CLAIMS

We claim:

1. A process for digesting woodchips used in papermaking comprising:

adding an effective digesting amount of a digesting additive comprising a sultaine to a slurry of woodchips and white liquor.
2. The process of claim 1 wherein the digester additive further comprises a nonionic surfactant, selected from the group consisting of (a) polyglycosides, (b) polyoxyalkylene glycols, and (c) mixtures thereof.
3. The process of claim 1 wherein the amount of digesting additive is from about 0.05% to 1.00% based upon the weight of the woodchips digested.
4. The process of claim 3 wherein the weight ratio of sultaine to nonionic surfactant is from about 10:90 to 90:10.
5. The process of claim 4 wherein the nonionic surfactant is a polyglycoside and the polyglycoside is an alkyl alkoxy polyglycoside having the following structural formula:

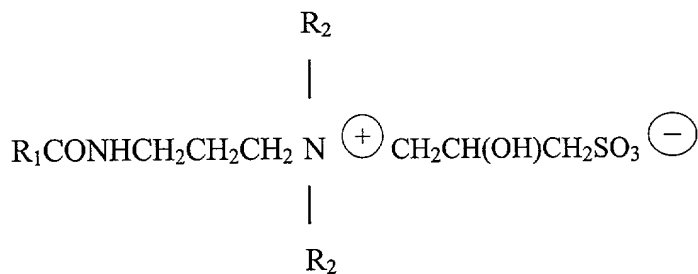
$$R_1O-(\text{glycosyl})_x$$

where R_1 is selected from the group consisting of alkyl, alkylphenyl, hydroxyalkyl, hydroxyalkylphenyl, and mixtures thereof in which the alkyl groups contain from about 6 to about 30; and x is from about 1.0 to about 10; and glycosyl is a monosaccharide unit.
6. The process of claim 4 wherein the nonionic surfactant is a polyoxyalkylene glycol having the following structural formula:



where m, which may be the same or different, is a number from 1 to 50, and n is a number from 10 to 65.

7. The process of claim 4 wherein the nonionic surfactant is a mixture of a polyglycoside and a polyoxalkylene glycol.
8. The process of claim 5 wherein the weight ratio of sultaine to polyglycoside in the surfactant blend is from about 40:60 to 60:40.
9. The process of claim 6 where the weight ratio of sultaine to polyoxyalkylene glycol in the surfactant blend is from about 40:60 to 60:40
10. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, or 9 wherein sultaine is represented by the following chemical structure:



11. The process of claim 10 where the weight ratio of sultaine to nonionic surfactant is from 40:60 to 60:40 and the weight ratio of polyglycoside to polyoxyalkylene glycol in the surfactant blend is from 90:10 to 10:90.
12. The process of claim 11 wherein the amount of pulping woodchips used is from 10 to 40 weight percent based on the weight percent of the white liquor.

1 13. A digester additive for pulping woodchips comprising:

2
3 (a) a sultaine; and

4
5 (b) a nonionic surfactant selected from the group consisting of

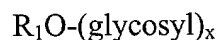
6
7 (1) polyglycosides,

8
9 (2) polyoxyalkylene glycols, and

10
11 (3) mixtures thereof.
12

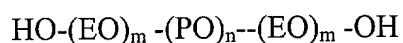
13 14. The composition of claim 13 wherein the weight ratio of sultaine to nonionic
14 surfactant is from about 10:90 to 90:10.

15
16 15. The composition of claim 14 wherein the nonionic surfactant is a polyglycoside
17 and the polyglycoside is an alkyl alkoxy polyglycoside having the following
18 structural formula:



22 where R_1 is selected from the group consisting of alkyl, alkylphenyl,
23 hydroxyalkyl, hydroxyalkylphenyl, and mixtures thereof in which the alkyl
24 groups contain from about 6 to about 30; and x is from about 1 to about 10; and
25 glycosyl is a monosaccharide group, and the polyglycoside is an alkyl and
26 alkoxy polyglycoside.
27

28 16. The composition of claim 15 wherein the nonionic surfactant is a
29 polyoxyalkylene glycol having the following structural formula:



33 where m is a number from 1 to 50, and n is a number from 10 to 65.
34

- 1 17. The composition of claim 16 wherein the nonionic surfactant is a mixture of a
2 polyglycoside and a polyoxalkylene glycol.
3
- 4 18. The composition of claim 17 wherein the weight ratio of sultaine to
5 polyglycoside in the surfactant blend is from about 40:60 to 60:40.
6
- 7 19. The composition of claim 18 where the weight ratio of sultaine to
8 polyoxyalkylene glycol in the surfactant blend is from about 40:60 to 60:40
9
- 10 20. The composition of claim 19 where the weight ratio of sultaine to nonionic
11 surfactant is from 40:60 to 60:40 and the weight ratio of polyglycoside to
12 polyoxyalkylene glycol in the surfactant blend is from 90:10 to 10:90.
13